



# UNITED STATES PATENT AND TRADEMARK OFFICE

*un*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,571	02/17/2004	Frank Anthony Doljack	PWRSP009/PWR-026995	9279

7590 10/19/2006

John S. Beulick  
Armstrong Teasdale LLP  
Suite 2600  
One Metropolitan Square  
St. Louis, MO 63102

EXAMINER

HA, NGUYEN T

ART UNIT	PAPER NUMBER
----------	--------------

2831

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/781,571

Applicant(s)

DOLJACK ET AL.

Examiner

Nguyen T Ha

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,8-12,20,24,25 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,5,6,8-12,20,24,25 and 27-35 is/are allowed.
- 6) ☒ Claim(s) 36-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) \*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Request Continuation Examination**

1. The request filed on 06/09/2006 for a Request Continuation Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/781,571 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Response to Amendment***

2. The examiner acknowledges the applicant's submission of the amendment dated 6/19/2006. At this point, claims 36-38 have been added. Claims 1, 5-6, 8-12, 20, 24-25 and 27-38 are pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 36-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Thorne et al. (US 6,777,908).

Regarding claim 36, Thorne et al. disclose a module having inductor-free circuitry for controlling voltage imbalances between a pair of capacitors connected in a series arrangement (figures 1-2) comprising:

Art Unit: 2831

- a first terminal configured for connection to a positive plate of the first capacitor (104);
- a second terminal configured for connection to a negative plate of the first capacitor and to a positive plate of the second capacitor (105, figure 1);
- a third terminal configured for connection to a negative plate of the second capacitor (figure 1); and
- an active element (103) integrated within the inductor-free circuitry between the first, second and third terminals and adapted to substantially balance the voltage imbalances between the pair of capacitors, the active element having power connections to the first and third terminals (figure1).

Regarding claim 37, the method steps are necessitated by the device structure, as it is disclose by Thorne et al. (figures 1-2) comprising:

- forming a first terminal configured for connection to a positive plate of the first capacitor (104);
- forming a second terminal configured for connection to a negative plate of the first capacitor and to a positive plate of the second capacitor (105, figure 1);
- forming a third terminal configured for connection to a negative plate of the second capacitor (figure 1); and
- integrated and active element (103) within an inductor-free circuitry between the first, second and third terminals such that the active element substantially balances the voltage imbalances between the pair of

capacitors, the active element having power connections to the first and third terminals (figure 1).

Regarding claim 38, Thorne et al. disclose an active balancing system for controlling voltages, the system comprising:

- a first capacitor (104);
- a second capacitor (105) connected in series with the first capacitor; and
- an active element (103) connected between the first and second capacitors, the active element substantially balancing a voltage imbalance between the first and second capacitors, wherein the active element is inductor free (figure 1).

***Allowable Subject Matter***

5. Claims 1,5-6, 8-12, 20, 24, 25 and 27-35 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claims 1,5,8-12 and 32-35, the prior art alone or in combination does not teach the limitation of a module having inductor-free circuitry for controlling voltage imbalances between a pair of capacitors connected in a series arrangement comprising an op amp having an input and output, and a feedback loop, the input being connected to two dividing resistors, the output being connected to the second terminal through a current limiting resistor, wherein an end of the feedback loop is connected between the output and the current limiting resistor.

With respect to claims 6, the prior art alone or in combination does not teach the limitation of a module having inductor-free circuitry for controlling voltage imbalances

Art Unit: 2831

between a pair of capacitors connected in a series arrangement comprising an active element integrated within the inductor-free circuitry between the first, second and third terminals and adapted to substantially balance the voltage imbalances between the pair of capacitors, the active element having power connections to the first and third terminals, wherein the active element is a switched voltage converter that incorporates a flying capacitor.

With respect to claims 20, 24, and 27-31, the prior art alone or in combination does not teach the limitation of a method for controlling voltage imbalances between a pair of capacitors connected in a series arrangement comprising the steps of: forming an active element within an inductor-free circuitry between the first, second and third terminals such that the active element substantially balances the voltage imbalances between the pair of capacitors, the active element having power connections to the first and third terminals, wherein the active element is an op amp, the op amp having an input and output, and a feedback loop, the input being connected to two dividing resistors, the output being connected to the second terminal through a current limiting resistor, wherein an end of the feedback loop is connected between the output and the current limiting resistor.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

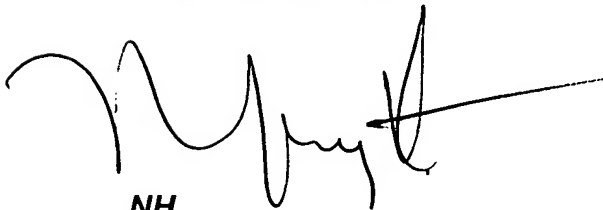
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T. Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NGUYEN T. HA  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to be 'N. Ha', with a long horizontal stroke extending to the right.

NH  
October 5, 2006